170E. Introduction to Probability and Statistics: Part 1 Probability

Lecture 1, Winter 2020

1. General information

Instructor: Sangchul Lee
Email: sos440@math.ucla.edu (Please mention Math 170E when emailing me.)
Webpage: https://www.math.ucla.edu/people/visiting/sos440
Office: Math Sciences Building (MS) 6322
Office Hours: *(Tentative)* Wednesday 3:30–5:00 pm, Friday 1:00–2:30 pm,
or any other time by appointment.

Teaching assistants: Robert Housden (Office: MS 6603)
Discussion section 1A: Thursday, 9:00–9:50 am, MS 5117

Lectures: MWF, 9:00–9:50 am, MS 5117
Textbook: Hogg, Tanis, Zimmerman, Probability and Statistical Inference *(10th Edition)*
Prerequisite: Courses 31A, 31B.
CCLE: https://ccle.ucla.edu/course/view/20W-MATH170E-1
Course Website: https://www.math.ucla.edu/ugrad/courses/math/170E

2. Grading

Your final grade will be computed as the maximum of the following two schemes:

- Scheme 1: 15% Homework + 30% (Max. of two midterms) + 55% Final Exam
- Scheme 2: 15% Homework + 20% Midterm 1 + 20% Midterm 2 + 45% Final Exam

3. Exams

During both the midterms and the final exam, you may not use books, notes, calculators, cell phones, or anything other than pen/pencil. There will be two midterms during the regular class hours. **There will be no make-up exams for missed midterms.** If you miss one midterm for a legitimate reason, your final grade will be computed using the first scheme above. **You must take the final exam in order to pass the class.** Make-ups for the final exam are permitted only under exceptional circumstances, as outlined in the UCLA student handbook. The exams are scheduled for the following dates:

- Midterm 1: Wednesday, February 5
- Midterm 2: Monday, March 2
- Final exam: Friday, March 20, 3:00–6:00 pm.

Please make sure you have no time conflicts and bring your ID cards to all exams.

4. Homework

Homework is very important to understanding the class materials and you should be able to clearly explain all your solutions to all the homework problems. Homework will be collected every Friday in class, and will be graded and returned to you in your discussion section, usually the following week. The assignments will be announced in class, and made available on the course website. **Late homework will not be accepted without exceptions,** but your lowest two homework scores will be dropped in the computation of your final grade. Your homework must be stapled and clearly labeled with your name and ID.

170E Lecture 1 Schedule of Lectures *(Tentative)*

Week	Date	Lecture #	Sections	Topics
	Mon Jan 6	1	1.1	Basic Properties of Probability
1	Wed Jan 8	2	1.2	Methods of Counting
	Fri Jan 10	3	1.3	Conditional Probability
	Mon Jan 13	4	1.4	Independence
2	Wed Jan 15	5	1.5	Bayes' Theorem
	Fri Jan 17	6	2.1	Discrete Random Variables
	Mon Jan 20	Holiday		
3	Wed Jan 22	7	2.2	Expectation
	Fri Jan 24	8	2.3	Examples of Expectation
	Mon Jan 27	9	2.4-5	Binomial Distribution, Negative Binomial Distribution
4	Wed Jan 29	10	2.6-7	Hypergeometric Distribution, Poisson Distribution
	Fri Jan 31	11	3.1	Continuous Random Variables
	Mon Feb 3	12	3.2	Examples: exponential, Gamma, Chi-square
5	Wed Feb 5	**Midterm 1**		In class. (Should cover Chapters 1 and 2)
	Fri Feb 7	13	3.3	Normal Distribution
	Mon Feb 10	14	3.4	Additional models: failure rate, mortality, insurance
6	Wed Feb 12	15	4.1	Discrete bivariate distributions
	Fri Feb 14	16	4.2	Correlation
	Mon Feb 17	Holiday		
7	Wed Feb 19	17	4.3	Conditional Distributions
	Fri Feb 21	18	4.4	Continuous Bivariate Distributions
	Mon Feb 24	19	4.5	Bivariate Normal Distribution
8	Wed Feb 26	20	5.1	Functions of a random variable
	Fri Feb 28	21	5.2	Transformations of 2 random variables
	Mon Mar 2	**Midterm 2**		In class. (Should cover Chapters 3 and 4)
9	Wed Mar 4	22	5.3	Several Random variables
	Fri Mar 6	23	5.4	Moment generating functions
	Mon Mar 9	24	5.5	Random functions associated to normal distributions
10	Wed Mar 11	25	5.6-7	Central Limit Theorem, Approximations for Discrete distributions
	Fri Mar 13	26	5.8	Chebyshev's inequality and convergence in probability
Finals	Fri Mar 20	**Final Exam**		3:00-6:00 pm (15:00-18:00). Rooms will be announced later.